## AMENDMENTS TO THE CLAIMS

A marked-up version of the claims that will be pending following entry of the present amendments showing the amendments made herein follows. Matter that has been deleted from the claims is indicated by strikethrough and matter that has been added is indicated by underlining.

1. (Currently amended) A particle, comprising:

a core particle; and

at least one substance, ~~associated~~ bonded covalently with said core particle, comprising magnetic material and polymeric material, wherein an amount and type of magnetic material in said substance ranges from greater than 0% to nearly 100% of said substance, and wherein said amount and type of magnetic material is chosen to achieve a desired magnetic response from said particle upon exposure to a magnetic field.

2. (Previously Presented) A particle according to Claim 1, wherein the core particle is a microsphere or bead.

3. (Original) A particle according to Claim 2, wherein the microsphere or bead ranges in size from about 1 μm to about 100 μm.

4. (Original) A particle according to Claim 1, wherein the at least one substance is a nanosphere comprising polymeric material and magnetic material.

5. (Original) A particle according to Claim 4, wherein the size of the nanosphere and the amount of the nanosphere is chosen to achieve the desired magnetic response.

6. (Currently amended) A particle, comprising:

a core particle; and

an amount of at least one magnetic substance, ~~associated~~ bonded covalently with said core particle, wherein said amount of said at least one magnetic substance is effective to achieve a desired magnetic response from said particle upon exposure to a magnetic field.

7. (Original) A particle according to Claim 6, further comprising at least one reactant.

8. (Original) A particle according to Claim 7, wherein the at least one reactant has a surface-reactive moiety chosen from amines, thiols, carboxylic acids, hydrazines, halides, alcohols, and aldehydes.

9. (Original) A particle according to Claim 6, wherein the at least one magnetic substance is chosen from ferromagnetic, paramagnetic and superparamagnetic materials.

10. (Original) A particle according to Claim 6, wherein the at least one magnetic substance includes a magnetic component chosen from magnetite, hematite, chromium dioxide, and ferrite alloys.

11. (Original) A particle according to Claim 6, wherein the magnetic substance has a magnetic content ranging from greater than 0% to 100%.

12. (Original) A particle according to Claim 6, wherein the magnetic substance further comprises polymeric material.

13. (Original) A particle according to Claim 12, the magnetic substance comprising a core of 100% magnetic material and a coating comprising polymeric material.

14. (Original) A particle according to Claim 6, wherein the at least one magnetic substance is chosen from magnetic nanospheres.

15. (Original) A particle according to Claim 14, further comprising non-magnetic nanospheres.

16. (Original) A particle according to Claim 15, wherein the core particle is uniformly coated with the at least one magnetic substance.

17. (Original) A particle according to Claim 6, wherein the core particle is uniformly coated with the at least one magnetic substance.

18. (Original) A particle according to Claim 17, wherein the core particle is completely coated with the at least one magnetic substance.

19. (Original) A particle according to Claim 6, further comprising at least one fluorescent tag.

20. (Currently amended) A set of particles, comprising:

pooled populations of particles comprising at least a first population of particles and another population of particles, wherein particles of each population comprise at least one magnetic substance covalently ~~associated~~ bonded with a core particle in an amount effective for achieving a desired magnetic response upon exposure to a magnetic field, and wherein said first population of particles is distinguishable from said another population of particles based at least on said desired magnetic response of the particles within said first population upon exposure to a magnetic field.

21. (Currently amended) A method of forming magnetically-responsive particles, comprising:

bonding covalently ~~associating~~ with a core particle at least one magnetic substance in an amount effective for achieving a desired magnetic response upon exposure to a magnetic field.

22. (Currently amended) A method according to Claim 21, wherein the at least one magnetic substance is covalently ~~linked~~ bonded to said core particle.

23. (Previously Presented) A method according to Claim 21, wherein the at least one magnetic substance is chosen from magnetic nanospheres.

24. (Previously Presented) A method according to Claim 23, wherein the size and number of the magnetic nanospheres determines the amount effective for achieving a desired magnetic response.

25. (Currently amended) A method of forming a magnetically-responsive population of particles, comprising:

selecting an amount of magnetic substance for achieving a desired magnetic response upon exposure to a magnetic field;

selecting a population of particles wherein particles of said population comprise core particles; and

covalently ~~associating~~ bonding the amount of magnetic substance with said core particles.

26. (Previously Presented) A method according to claim 25, wherein the magnetic substance is chosen from magnetic nanospheres, and the amount of magnetic substance is selected by choosing the size of the nanospheres, the type of magnetic content of the nanospheres, the concentration of magnetic content of the magnetic nanospheres, and the number of nanospheres.

27. (Currently amended) A method of forming a pooled set of magnetically-responsive populations of particles, said particles comprising a core particle and at least one magnetic substance bonded covalently with said core particle, comprising:

combining a population of particles having a desired magnetic response with at least one other population of particles having a different desired magnetic response.

28. (Currently amended) A method according to claim 27, wherein the magnetic response relates to the amount of at least one magnetic substance covalently ~~associated~~ bonded with core particles in a population.